sources on the Internet, but has not met with any success. The Applicants are still searching for a copy among their own records. As soon as a copy can be found a Supplemental Information Disclosure Statement with copies of any potentially relevant pages will be submitted (the book is 506 pages long). Notwithstanding the Applicants' continued attempt to comply with the Examiner's request for a copy of this reference, the Applicants contend that the Biot reference is not a reference which needs to be disclosed under 37 C.F.R. § 1.56, as it is not material to patentability of any of the claims. Nor is the reference necessary for enablement, as it merely describes what is now well known to those skilled in the relevant art. (A search of "biot incremental deformations" on www.google.com reveals a number of published technical papers which reference this text.) The Biot reference is chararacterized in the specification at page 3 line 14 through page 4 line 2, and is cited merely to provide support for the concept that the influence of initial stresses on traveltime and, especially, amplitude parameters of seismic waves, can be very significant, and the degree of this influence is proportional to the ratio P/μ (where P is pressure and μ is the shear modulus). Therefore, although the Applicants will continue to search for a copy of this reference, they contend that it is not a reference which needs to be disclosed under 37 C.F.R. § 1.56, and therefore respectfully request the Examiner to withdraw the request for a copy of the reference.

Claim Rejections

Double Patenting

Claims 1-8 have been rejected under the judicially created doctrine of double patenting over claim 1 of U.S. Patent No. 6,028,820 and claim 1 of U.S. Patent No. 5,796,678. (See paragraph 9 of the Office action.)

The Applicants respectfully disagree.

A comparison of the claims of U.S. Patent No. 5,796,678 and claim 1 of the instant is set forth below:

Patent No. 5,796,678	Instant application
A method for identification of locations of accumulation of fluids within a region of a subterranean formation, said region being characterized by a seismic image, said seismic image comprising a stacked time section representing horizons within said region, said horizons having associated isochronal maps, each said isochronal map having areas of relative highness and lowness relative to the average elevational dimension of said isochronal map, the method comprising the steps of picking a first selected horizon from said seismic image, calculating a set of instantaneous amplitudes and instantaneous frequencies for said first selected horizon, and determining an average amplitude and an average frequency of said set of instantaneous amplitudes and said instantaneous frequencies; the method further comprising the sequential steps of:	A method for determining the location of the accumulation fluids in a subterranean formation, comprising:
identifying pressure gradients associated with said instantaneous amplitudes and instantaneous frequencies to generate a pressure gradient map identifying pressure gradients, said pressure gradients corresponding to points at which said instantaneous amplitudes and said instantaneous frequencies vary from said average amplitude and said average frequency, wherein points at which said instantaneous amplitudes and said instantaneous frequencies are less than said average amplitudes and said average frequencies correspond to locations of relatively low pressure;	determining a first velocity vector "V_x" for migration of fluid in a region of interest in the subterranean formation, the first velocity vector comprising attributes of speed and direction of flow of fluid in a first direction in the region of interest;
overlaying said pressure gradient map on the isochronal map corresponding to said first selected horizon; and	determining a second velocity vector "V_y" for migration of fluid in the region of interest, the second velocity vector comprising attributes of speed and

	direction of flow of fluid in a second direction in the region of interest;
identifying said locations of relatively low pressure on said pressure gradient map which correspond to relatively high areas of said iscohron map to identify locations more likely to contain fluids than other locations within said region;	extrapolating the velocity vectors to identify the fluid accumulation location; and
overlaying said pressure gradient map on the isochronal map corresponding to said first selected horizon; and*	wherein the first and second velocity vectors are primarily functions of supplementary pressure "dP" in the region of interest, the permeability "c" of the region of interest, and the viscosity "u" of the fluid in the region of interest.
identifying said locations of relatively low pressure on said pressure gradient map which correspond to relatively high areas of said isochronal map to identify locations more likely to contain fluids than other locations within the region.*	

*Note: Claim 1 of U.S. Patent No. 6,028,820 is identical to claim 1 of U.S. Patent No. 5,796,678 except that claim 1 of U.S. Patent No. 6,028,820 does not contain the steps identified by an asterisk, and the preamble is slightly shorter.

As can be seen, claim 1 in the instant application includes the steps of determining velocity vectors, which are not found in the claims of U.S. U.S. Patent Nos. 5,796,678 and 6,028,820. Further, none of the steps in claims 1 of U.S. Patent Nos. 5,796,678 and 6,028,820 are found in claim 1 of the instant application. Nor are the steps recited in claim 1 of the instant application obvious in light of U.S. Patent Nos. 5,796,678 and 6,028,820. Accordingly, there can be no anticipation, and therefore no double patenting. Claims 2-8 of the instant application all depend (either directly or indirectly) from claim 1. Accordingly, if claim 1 is novel over the prior patents, then so must be claims 2-8. The Applicants therefore respectfully request that the double patenting rejection of claims 1-8 be removed.

It was also stated in the Office action that "claims 5-8 are multiple dependent claims." The Applicants are unclear what is meant, since claims 5-8 all depend directly from claim 1. Clarification is requested if any action is required in light of this comment.

Rejection of Claim 1 under 35 U.S.C. § 102 (Watts III)

Claims 1 and 2 have been rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,108,608 (Watts III). (See paragraph 11 of the Office actions.)

The Applicants respectfully disagree. In the first instance, Watts III cannot be used as a reference under 35 U.S.C. § 102 since the § 102(e) date of Watts III is after the date of filing of the Applicants' application. The Applicants' application was filed on December 1, 1999; Watts III was filed on December 9, 1999, eight days after the Applicants' filing date. Although Watts III claims priority to two earlier-filed provisional applications, these cannot be considered as prior art under 35 U.S.C. § 102(e) since they are not published under 35 U.S.C. § 122(b) (35 U.S.C. § 102(e)(1)), and are not an application on which a patent can be granted (35 U.S.C. § 102(e)(2)). Further, the Watts III application was never a published application.

Even if Watts III were eligible to be considered as prior art under 35 U.S.C. § 102(e) (which it is not), Watts III does not disclose the Applicants' claimed invention. Specifically:

As a starting point, the PTO and the Federal Circuit provide that §102 anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. (*In re Spada*, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Cir. 1990).) The corollary of this rule is that the absence from a cited §102 reference of any claimed element negates the anticipation. (*Kloster Speedsteel AB, et al v. Crucible, Inc., et al*, 793 F.2d 1565, 230 USPQ 81 (Fed. Cir. 1986).) Further, "[a]nticipation requires that all

of the elements and limitations of the claims are found within a single prior art reference." (*Scripps Clinic and Research Found. v Genetech. Inc.,* 927 F.2d 1565, 1576, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991 (emphasis added)). Accordingly, if the Applicants can demonstrate that the cited '608 patent (Watts III) does not disclose any one claimed element or limitation with respect to the Applicants' claims, then the §102 rejection must be withdrawn with respect to those claims.

Further, the PTO and the Federal Circuit provide that §102 anticipation requires that there must be no difference between the claimed invention and the reference disclosure. (*Scripps Clinic and Research Found. v. Genetech, Inc.,* id. (emphasis added).)

As shown in the table above, Applicants' claim 1 recites steps of determining two velocity vectors, and extrapolating the velocity vectors to identify the fluid accumulation location, and that the velocity vectors are primarily functions of supplementary pressure "dP" in the region of interest, the permeability "c" of the region of interest, and the viscosity "u" of the fluid in the region of interest. Watts III does not teach or suggest using velocity vectors. Rather, Watts III concentrates on using fluid compositions by component (see column 7, lines 6-23). At column 4, lines 52-60, Watts III defines the "base components" of his invention ("many base components will be hydrocarbon species such as methane, ethane, propane, . . . "). At column 4, lines 61-64, Watts III defines what he means by "pseudocomponents" ("each pseudocomponent comprises a fixed mixture of base components."). At column 8, lines 9-34 (esp. lines 12-15) Watts III describes the vectors of his invention ("the first vector is . . . representative of the set of base components . . . for example compositions can be expressed in mole fractions"). The "vectors" described in column 9 of Watts III are those vectors described in column 8, i.e., vectors based on mole fractions of various components within the reservoir. Further, Fig. 1 of Watts III does not show velocity vectors, but only a depiction of a cross section of a subterranean

formation. It is also noted that Figs. 2-8 of Watts III (comprising the remaining figures in Watts III) all show graphs of mole fraction versus chemical component (C_2, C_3, CO_2, etc.). Clearly, Watts III does not use of suggest the use of velocity vectors. The mere fact that both the Applicants and Watts III use vectors for their inventions does not render the Applicants' claims anticipated by, or obvious in light of, Watts III. It is worth noting that Watts III invention is directed towards a method for estimating the properties of a multi-component fluid in a volumetric zone, and has nothing to do with locating the fluids in the first place, which is the object of the Applicants' invention.

For these reasons the Applicants contend that claims 1 and 2 are not anticipated by Watts III, and respectfully request that the rejection of the claims as being anticipated by Watts III be removed.

Rejection of Claims 2-8 under 35 U.S.C. § 103 (Watts III)

Claims 2-8 have been rejected under 35 U.S.C. § 103 as being anticipated by U.S. Patent No. 6,108,608 (Watts III). (See paragraph 13 of the Office action.)

The Applicants respectfully disagree. In the first instance, Watts III cannot be used as a reference under 35 U.S.C. § 103 for the reasons stated above with respect to the § 102 rejection of claims 1 and 2 as being anticipated by Watts III.

In the second instance, even if Watts III were eligible to be considered as prior art under 35 U.S.C. § 103 (which it is not), Watts III does not suggest the Applicants' invention as claimed in claims 2-8. Specifically:

As a starting point,

> "[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the cited references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings.

> Second, there must be a reasonable expectation of success. **Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure." (Emphasis added.)

[MPEP 706.02(j)].

As described above with respect to the § 102 rejection of claims 1 and 2 as being anticipated by Watts III, Watts III does not teach or suggest the use of velocity vectors for the purposes of identifying the location of the accumulation of fluids in a subterranean formation. Watts III never describes or suggests the use of velocity vectors, and Watts III does not teach or suggest a method of identifying the location of the accumulation of fluids in a subterranean formation (both attributes of Applicants' claims 2-8 by virtue of their dependency on claim 1). Accordingly, Watts III does not "teach or suggest all the claim limitations" of Applicants' claims 2-8.

For these reasons, the Applicants contend that Watts III does not teach or suggest the invention set forth in Applicants' claims 2-8, and respectfully request that the rejection of these claims as being obvious in light of Watts III be removed.

Summary

For the above stated reasons, and with the exception that the Applicants will (1) provide formal drawings once (a) the issue of "prior art" labeling of Figs. 1-5 is resolved, and (b) the USPTO form 948 is received and any remaining required corrections are made to the drawings, and (2) will attempt to locate and forward to the Examiner in an IDS a copy of the references cited in the "Background" section,

the Applicants believe that the case is otherwise in condition for allowance, and respectfully request the same.

Respectfully submitted,

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By _____

John S. Reid
Attorney and agent for Applicants
Reg. No. 36,369
Phone: (509) 534 5789
Facsimile: (509) 532-0351